



Board of Directors Operations Committee Meeting

North Carolina Turnpike Authority

March 19, 2018

Proposed Monroe Expressway Toll Rate Schedule

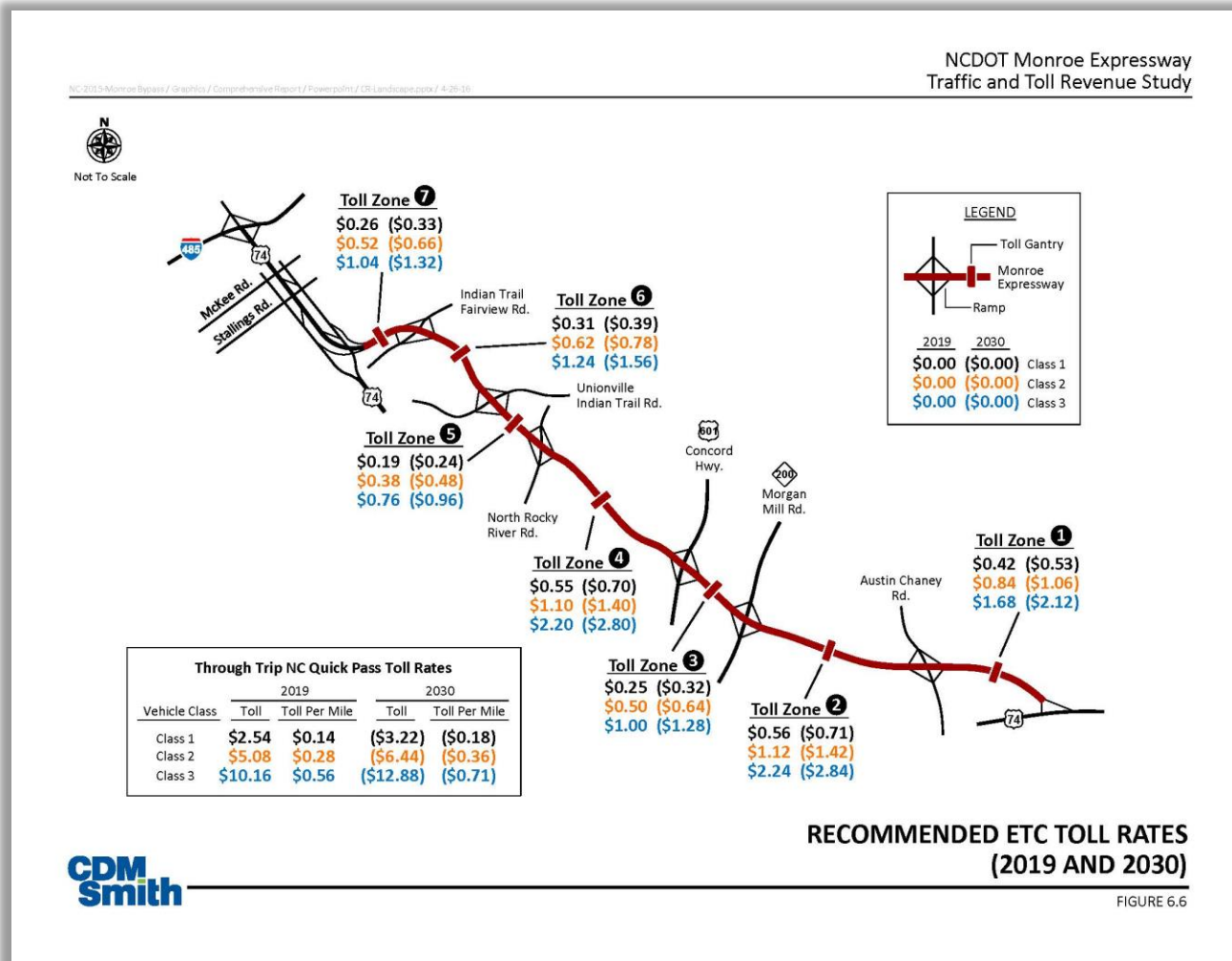
David Roy

Director of Finance

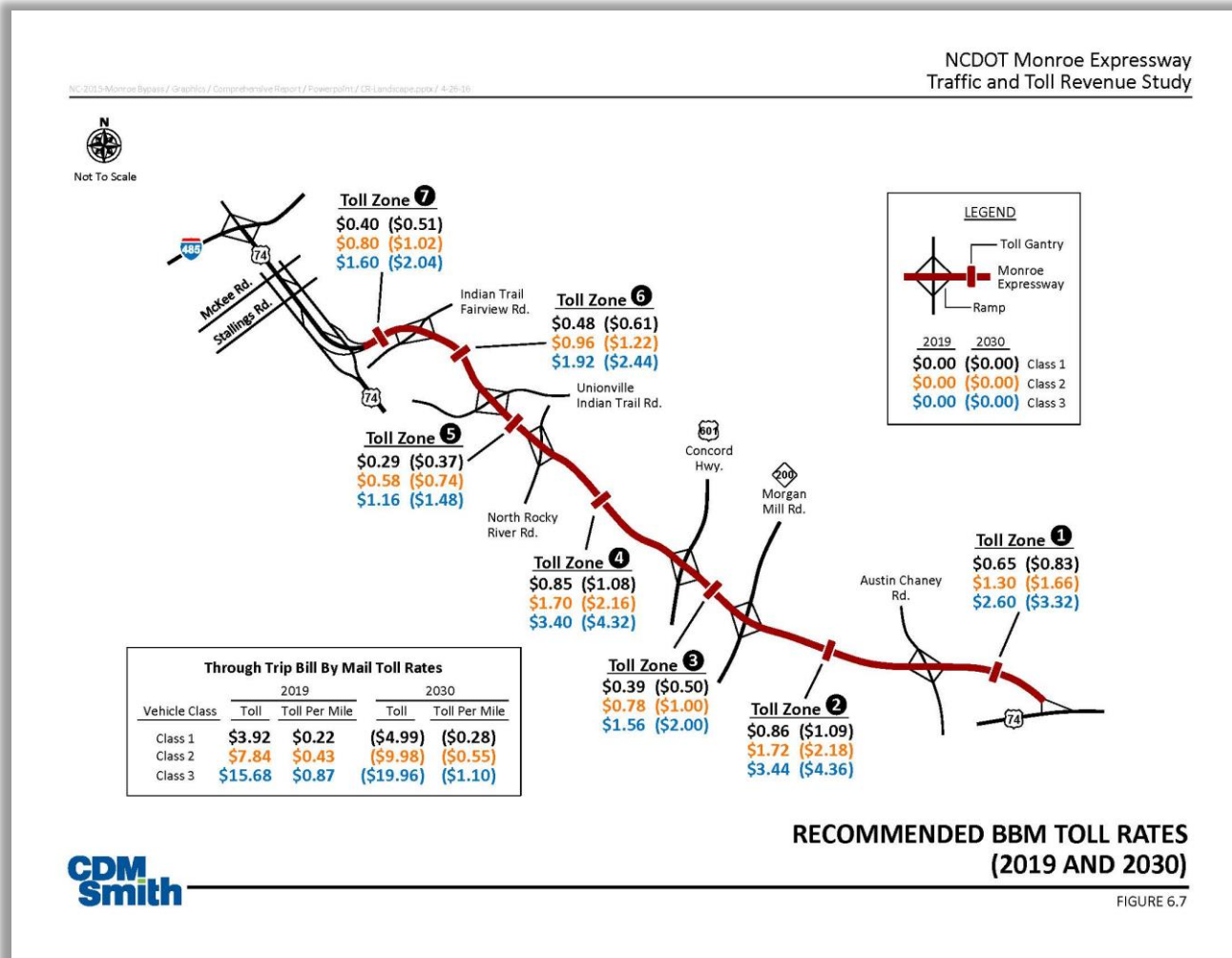
Proposed Monroe Expressway Toll Rate Schedule

- Class 1 (2 axle vehicles) paying via NC Quick Pass
 - \$0.14 per mile
 - \$2.54 to travel the length of the Monroe Expressway
- ETC toll rates are 35% lower than BBM rates
 - Class 2 (3 axle vehicles) are two times Class 1 toll rates
 - Class 3 (4+ axle vehicles) are four times Class 1 toll rates
- Toll rates increase annually on January 1
 - 2019 to 2025, annual increase averages 2.3%
 - 2025 to 2040, annual increase averages 2.1%

ETC Toll Rates



BBM Toll Rates



Wrong-Way Driver Program Update

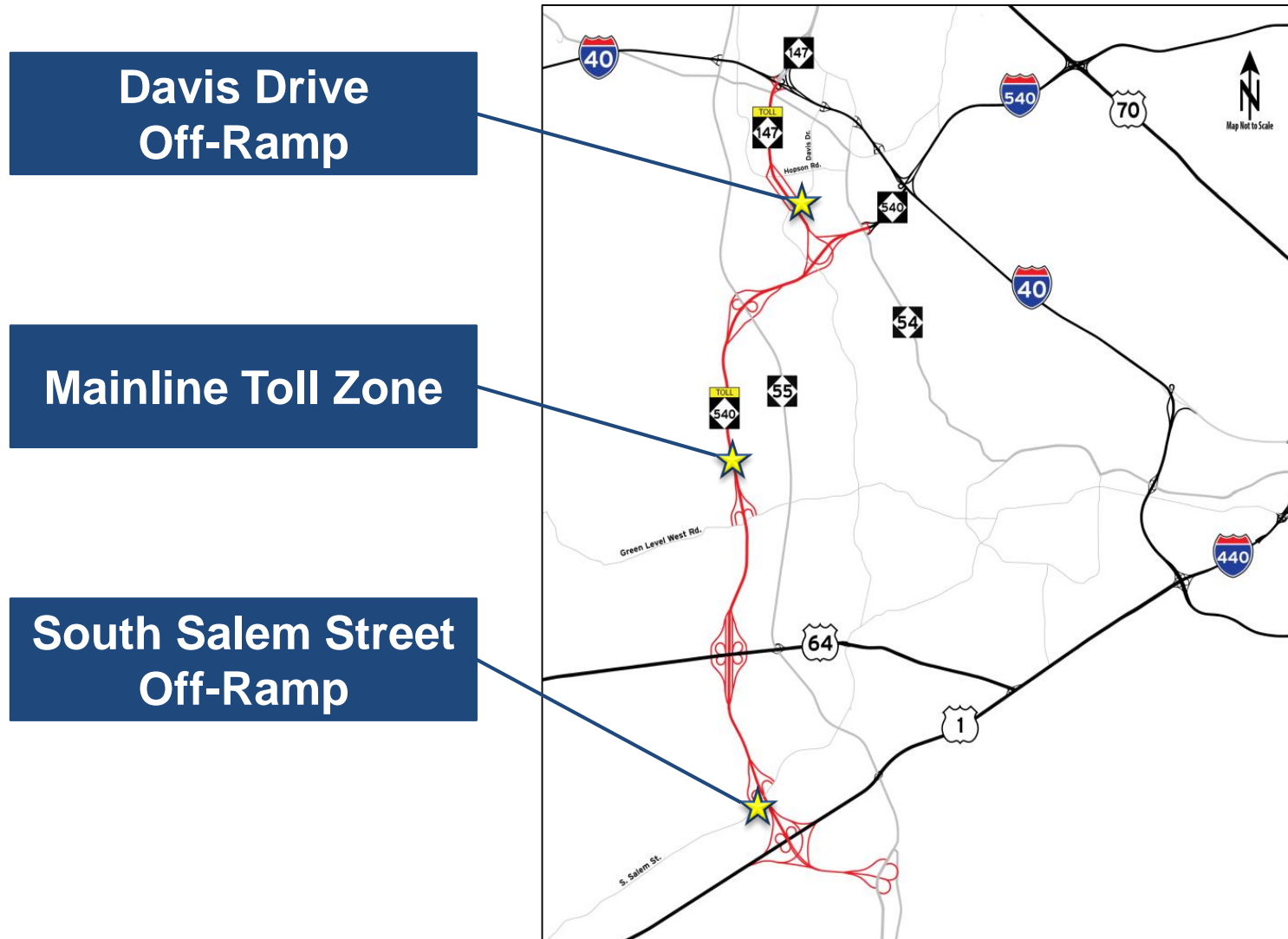
Andy Lelewski, P.E.

Director of Toll Operations

Pilot Program

- Initiated: 2017
- Approach:
 - Research industry trends
 - Establish proof of concept (small scale)
 - Evaluate multiple technologies
 - Prepare for large-scale deployments

Pilot Program Locations



Mainline Toll Zone

ROADSIDE TECHNOLOGY

Wrong-Way Electronic Signs

Once a wrong-way vehicle is detected by radar, red flashing lights are activated to alert the driver.



Davis Drive

TRAFFIC SIGNAL, PAVEMENT MARKINGS & SIGNING

- 1 Enhanced Traffic Signal Heads**
Traffic signal heads now display green directional arrows to indicate "no turns".



Old Traffic
Signal Heads



New Traffic
Signal Heads

- 2 Enhanced Pavement Markings**
Wider pavement markings increase the ramp intersection visibility and reinforce the prohibited traffic movement.



- 3 New Enhanced Signs**
Oversized static signs reinforce prohibited traffic moves.



ROADSIDE TECHNOLOGY

- 4 Radar Detection**
Detects vehicles driving in the wrong direction on the off-ramp.



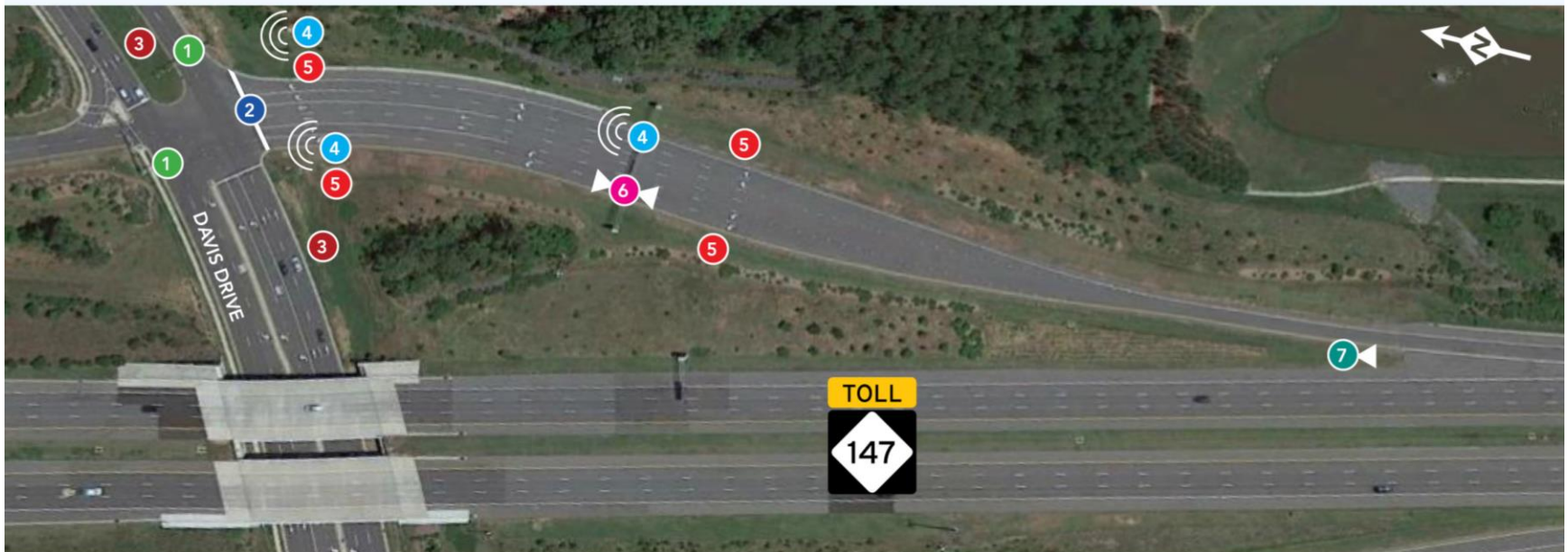
- 5 Wrong-Way Electronic Signs**
Once a wrong-way vehicle is detected by radar, red flashing lights are activated to alert the driver.



- 6 Incoming/Outgoing Cameras**
Two-directional cameras provide real-time wrong-way driving verification information to Turnpike Authority Traffic Management Center operators.



- 7 Verification/Confirmation Camera**
If the driver does not correct their direction of travel on the ramp, this camera provides verification of continued wrong-way driving on the Expressway.



South Salem Street

TRAFFIC SIGNAL, PAVEMENT MARKINGS & SIGNING

1 Enhanced Pavement Markings

Wider pavement markings increase the ramp intersection visibility and reinforce the prohibited traffic movement.



ROADSIDE TECHNOLOGY

2 Radar Detection

Detects vehicles driving in the wrong direction on the off-ramp.



3 Wrong-Way Electronic Signs

Once a wrong-way vehicle is detected by radar, red flashing lights are activated to alert the driver.



4 Incoming/Outgoing Cameras

Two-directional cameras provide real-time, wrong-way driving verification information to Turnpike Authority Traffic Management Center operators.



5 Verification/Confirmation Camera

If the driver does not correct their direction of travel on the ramp, this camera provides verification of continued wrong-way driving on the Expressway.



New Traffic Management Center Systems

BlinkLink Systems Alerts! 1 Reports - Help Account -

System Alerts Alert Details

Alert Details

Manage Alert More System Info

Wrong Way Detection

02/20/2018 10:38:36 PM EST (NC-147 NB @ Davis Drive)

13 of 15



Alert Resolution

Resolution: **Test Event**

Notes: NA

Full Alert Details

System: [NC-147 NB @ Davis Drive](#)

Controller: Wrong Way Alert Camera

Company: North Carolina Department of Transportation

Type: Wrong Way Detection

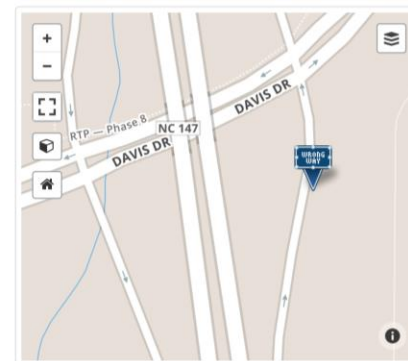
Date: 02-20-2018 10:38:36 PM EST

Alert ID: 813197

BlinkLink System List

System List

On



Click checkbox to select item

Quick Search

Type System Name System Status Notify

☒ NC-147 NB @ Davis Drive

Showing 1 of 1 entries

glance Chris Bealy - MOR Manufacturing powered by Apple

MOR Manufacturing

Name: Traffic_Cams_V0000001 Online: Counts: Fail

Alerts: 1 Add: 0 Unack: 0 Supp: 0

High: 0 0 0 0

Low: 0 0 0 0

Google earth

Implementation & Testing



Implementation & Testing



Next Steps



~~Concept of Operations (2017)~~



~~Deploy Pilot Sites on Triangle Expressway (Early 2018)~~



Evaluate Pilot Program (2018)



Plan Large-Scale Deployment – Multiple Projects

- Monroe Expressway (2018)
- Triangle Expressway (2019)



National Committee Involvement (Ongoing: TRB / IBTTA)



NCDOT Research Program (2018)

I-485 & US 74 Express Lanes Project Update

David Roy

Director of Finance

U.S. 74 Express Lanes (STIP Project U-5526A)

Segment 1: From I-277 to Albemarle Road

Diagram showing a cross-section of the road with 2 Express Lanes and 4 General Purpose Lanes.

Segment 2: From Albemarle Road to Wallace Lane

Diagram showing a cross-section of the road with 2 Express Lanes and 4 General Purpose Lanes.

U.S. 74 Express Lanes (STIP Project U-2509)

Diagram showing a cross-section of the road with 2 Express Lanes and 4 General Purpose Lanes. Subject to Change.

I-485 Express Lanes (STIP Project I-5507)

Proposed Typical Section (I-77 to Providence Road)

Diagram showing a cross-section of the road with 2 Express Lanes and 4 General Purpose Lanes.

Proposed Typical Section For Direct Connectors

Diagram showing a cross-section of the road with 2 Direct Connector Ramps, 2 Express Lanes, and 4 General Purpose Lanes.

U.S. 74 Bypass / Monroe Expressway (Toll Facility Under Construction)

NOT TO SCALE

I-485 Express Lanes (I-5507)

- One Express Lane in each direction between I-77 and US 74 (approximately 17 miles)
- Access to/from Express Lanes
 - Two Direct Connectors: Westinghouse Blvd & Johnston Rd
 - 5-6 intermediate Ingress/Egress Points in each direction
- Other Improvements
 - Extension of General Purpose lane between Rea Rd and Providence Rd in both directions - approximately 2 miles
 - New interchange at I-485/Weddington Rd (R-0211EC)
 - Improve I-485/John St interchange (U-4714AB)

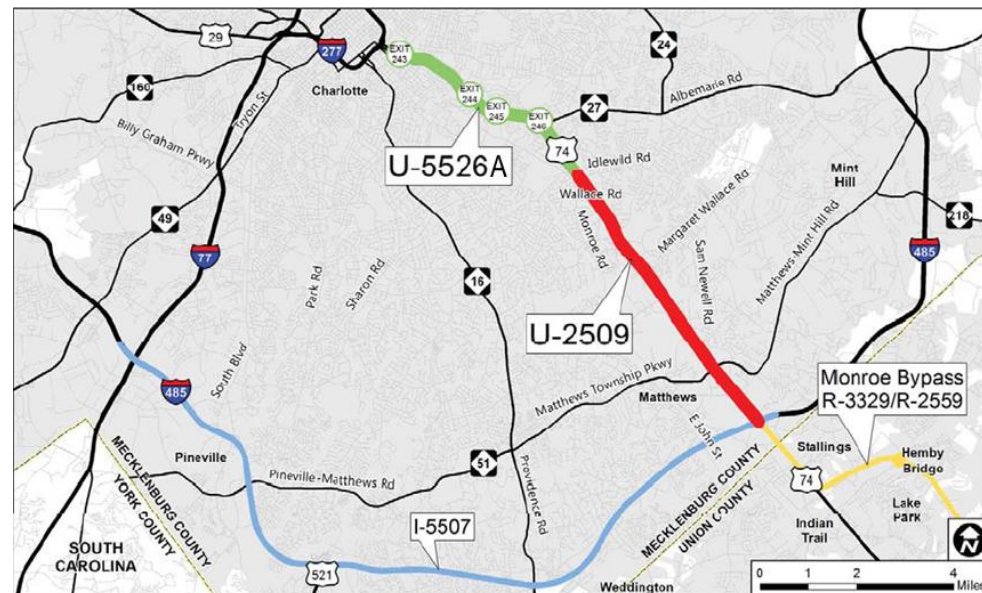
US 74 Express Lanes Phase I (U-5526A)

- Converting the bus lane along US 74 to Express Lane
 - Total length is approximately 6 miles
 - Reversible express lane between I-277 and Albemarle Rd
 - One express lane in each direction between Albemarle Rd and Wallace Ln
- Access to/from Express Lanes
 - One Direct Connector: Albemarle Rd
 - Ingress/Egress Point at each end of the project



US 74 Express Lanes Phase II (U-2509)

- One Express Lane in each direction between Conference Dr and I-485 – approx. 6 miles
- Access to/from Express Lanes
 - Three Direct Connectors: Conference Dr, Sardis Rd North, and I-485
 - Four intermediate Ingress/Egress Points in each direction
- Other improvements
 - Upgrade US 74 to expressway (no at-grade intersections)
 - Convert multiple at-grade intersections into grade separations or interchanges
 - Several parallel road connections to improve connectivity



Financial Overview

- NCDOT funding capital costs, including construction overruns
- NCTA responsible for toll operations
- Currently no support guarantee in place with NCDOT
- No operations reserve funds
- NCTA cannot cross collateralize projects
- No GA appropriations to support operations

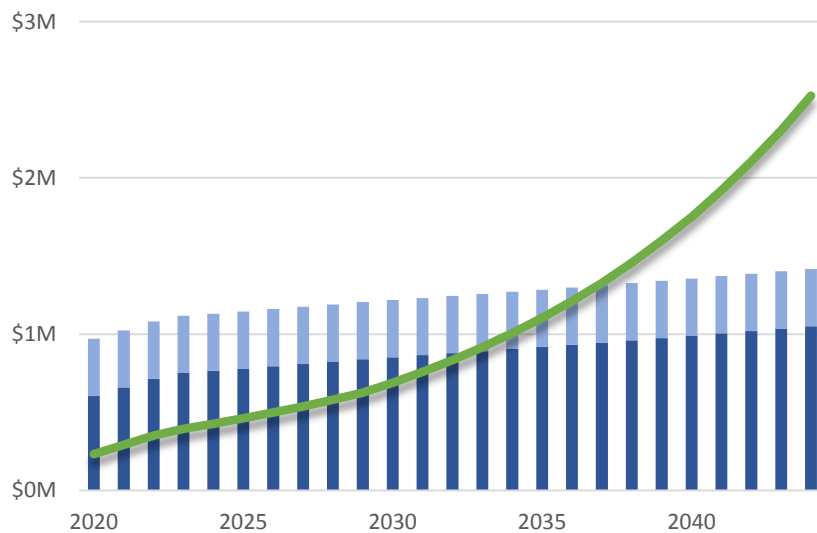
General Assumptions

- Does not include capital costs or related debt service
- Toll Operations Costs based on FY17 Triangle Expressway data
- No roadway maintenance costs included
- Toll equipment renewal and replacement, annualizing costs
- Annual enforcement costs
- Level II Traffic and Revenue for I-485
- Level I Traffic and Revenue for US 74 Phase I
- Screening level Traffic and Revenue for US 74 Phase II
- Base case revenue scenario (50 percent downside)

US 74

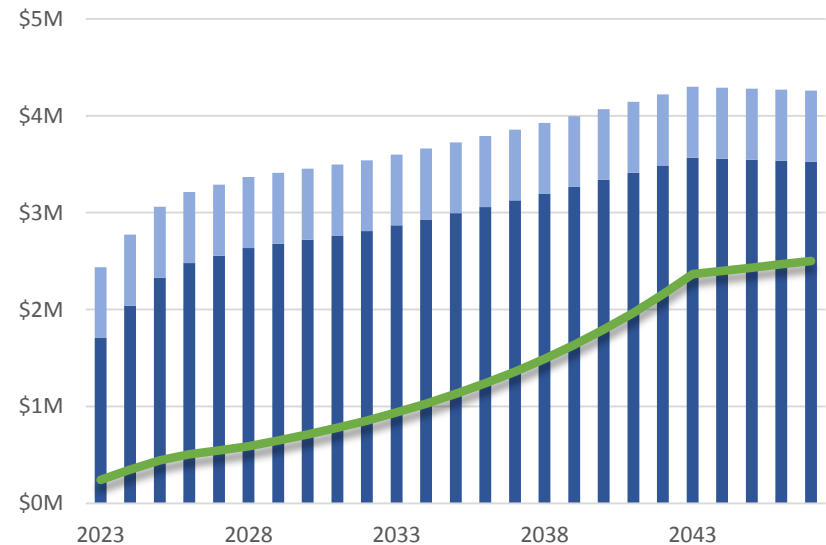
HOT3+ with Transponder

Phase I



Total Shortfall: \$(9,084,800)
Years of Shortfall: 17

Phases I and II

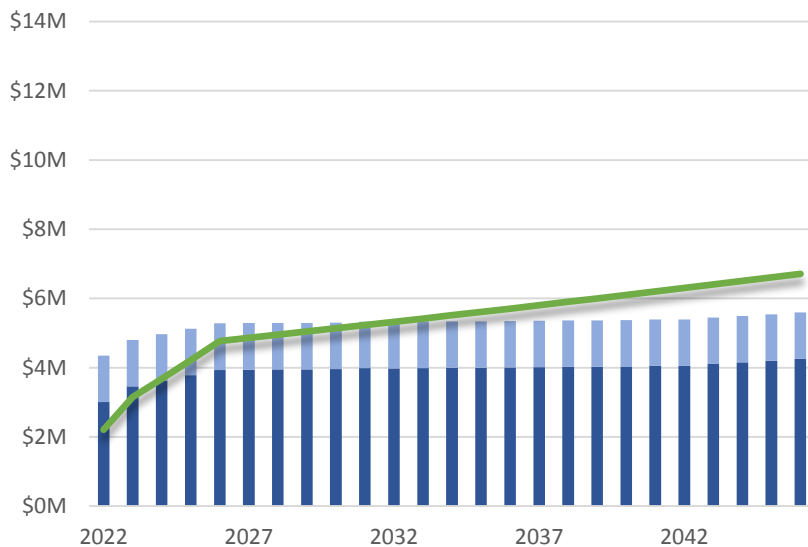


Total Shortfall: \$(59,845,300)
Years of Shortfall: 25

— Revenue
— Toll Capital
— Toll Operations

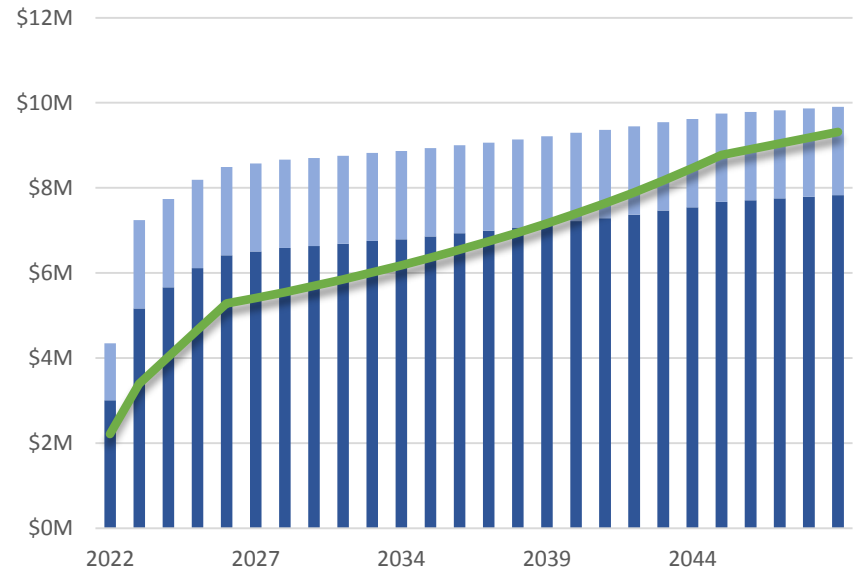
I-485 and Aggregate HOT3+ with Transponder

I-485



Total Shortfall: \$(7,773,700)
Years of Shortfall: 11

Aggregate



Total Shortfall: \$(56,756,600)
Years of Shortfall: 25

Revenue
Toll Capital
Toll Operations

Express Lanes Operating Scenarios

- Transit rides for free as well as those vehicles with 3 or more passengers with a switchable transponder. All other vehicles are charged.
- Transit rides for free as well as those vehicles (with 3 or more passengers) registered in a ride-share program. All other vehicles are charged.
- Transit rides for free and all other vehicles are charged.

South Florida Commuter Services and FDOT

www.1800234ride.com/95-express-lanes-general-information

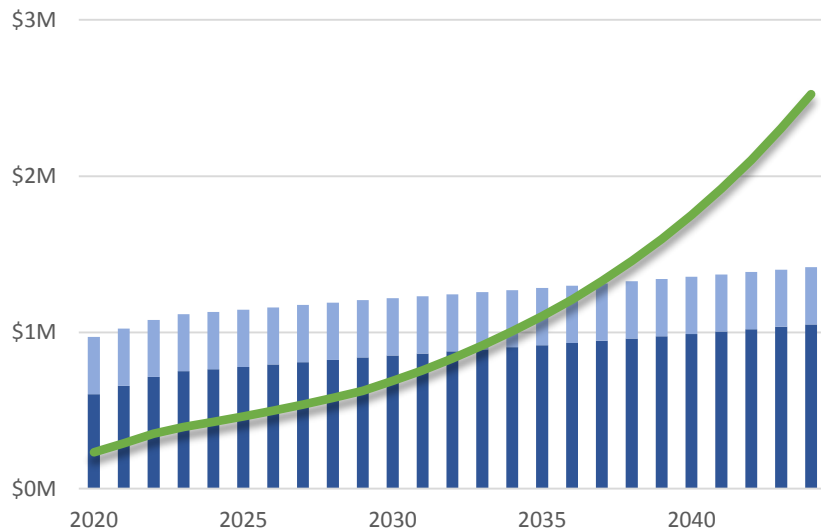
The screenshot shows a web browser window displaying the website <https://www.1800234ride.com/95-express-lanes-general-information>. The page features the logos for South Florida Commuter Services and FDOT. A navigation bar includes links for HOME, EXPRESS LANES, REGISTRATIONS, COMMUTER OPTIONS, EMERGENCY RIDE HOME, PARTNERS, EMPLOYER SERVICES, and ABOUT US. A search bar and a customer service number (1.800.234.RIDE) are also present. The main content area is titled "95 Express" and includes a large image of a bus and a highway. Below the image, there are several sections: "95 Express" with a link to "95 Express FAQs", "REGISTRATION & RENEWAL FORMS", "SFCS PROFILE LOGIN", and "LIVE CHAT". The "Express Lanes > 95 Express" section provides information about the project, stating that the 95 Express Lanes Project converted the High Occupancy Vehicle (HOV) lane to two limited access toll lanes referred to as the 95 Express Lanes. It also mentions that the Florida Department of Transportation (FDOT) funded this effort to provide new and enhanced mobility options for motorists and transit users in the region. Upon its completion, the lanes will span from Broward Blvd in Broward County to I-395/SR 836 in Miami-Dade County. The "Who Can Use the Lanes?" section states that anyone with a SunPass transponder or mini tag can use the lanes by paying the toll. Tolls fluctuate based on the level of congestion. For more information, please visit www.95express.com. The "Who Can Use the Lanes Toll Free?" section lists the following users who are able to use the 95 Express lanes toll free: Registered Carpools with 3+ Participants, Registered Hybrid Vehicles, and Registered South Florida Vanpools.

South Florida Commuter Services and FDOT

- Applies to I-95 Express Lanes in South Florida
- Applies to registered van pools and carpools with 3+ participants
- South Florida Commuter Services (SFCS) has the right to verify any information (including employment) provided on registration forms for one or all members of the 3+ carpool.
- All 3+ Carpool participants are responsible for maintaining and renewing their carpool and vehicle registration with South Florida Commuter Services in order to avoid toll charges.
- All vehicles not exempt from tolls would pay a dynamic toll at either a video bill by mail rate or a discounted transponder rate.

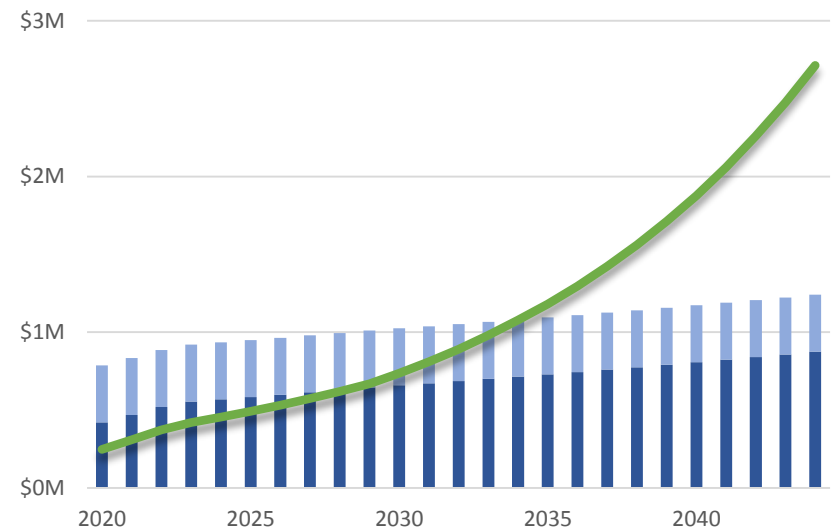
US 74 Express Lanes – Phase I

HOT3+ with Transponder



Total Shortfall: \$(9,084,800)
Years of Shortfall: 17

HOT3+ Registered Carpool

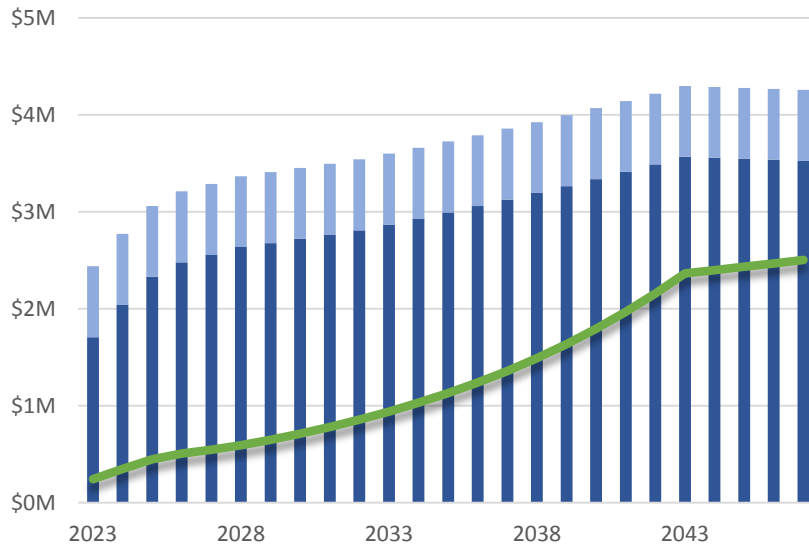


Total Shortfall: \$(5,335,000)
Years of Shortfall: 15

— Revenue
— Toll Capital
— Toll Operations

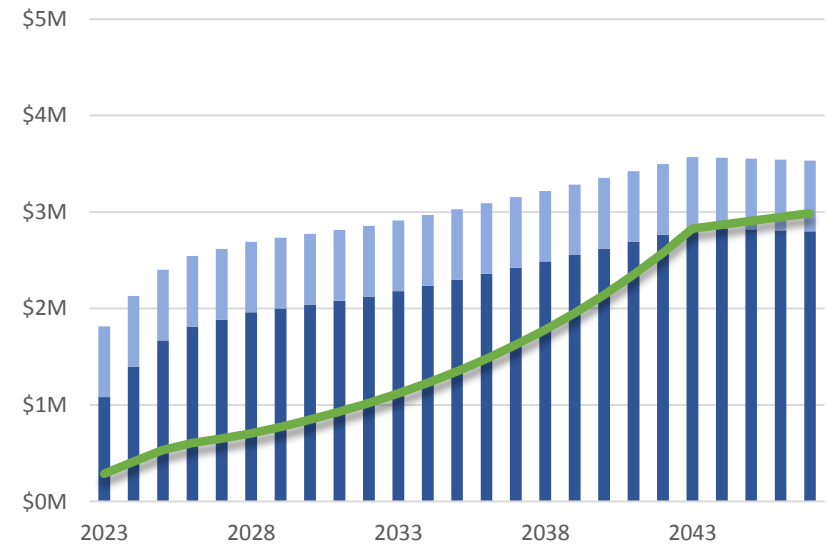
US 74 Express Lanes – Phases I & II

HOT3+ with Transponder



Total Shortfall: \$(59,845,300)
Years of Shortfall: 25

HOT3+ Registered Carpool

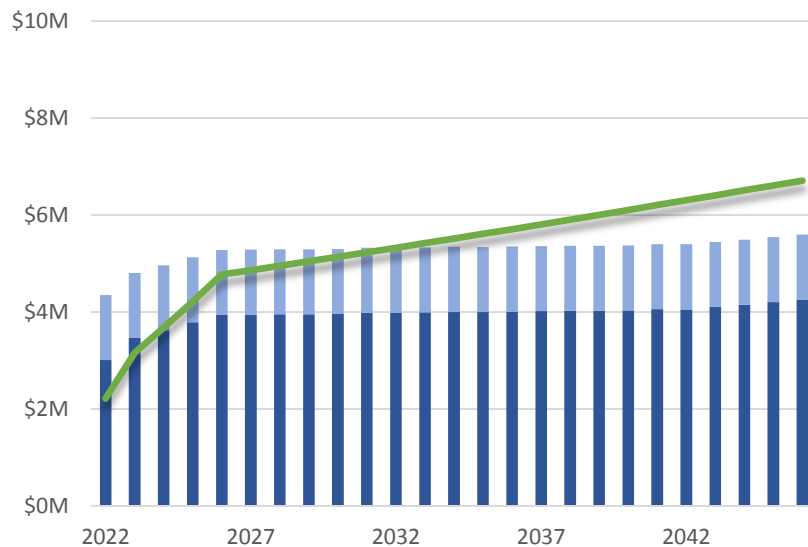


Total Shortfall: \$(36,149,400)
Years of Shortfall: 25

— Revenue
— Toll Capital
— Toll Operations

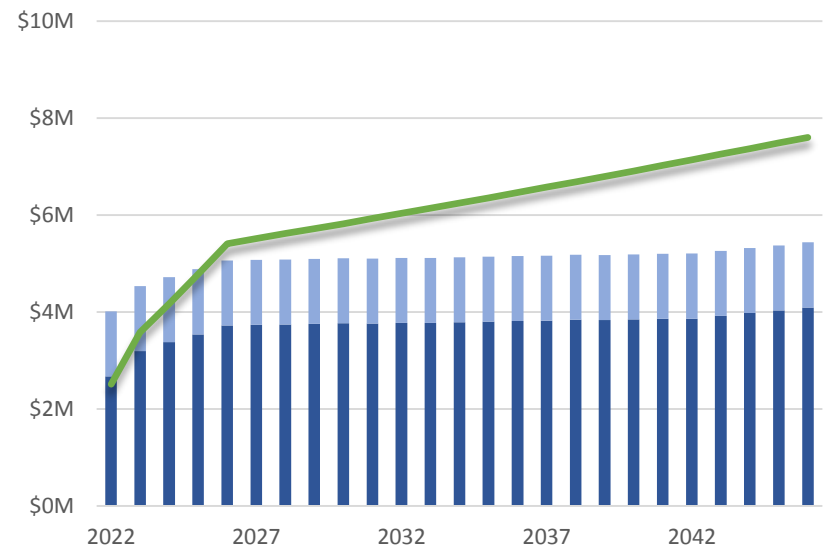
I-485 Express Lanes

HOT3+ with Transponder



Total Shortfall: \$(7,773,700)
Years of Shortfall: 11

HOT3+ Registered Carpool



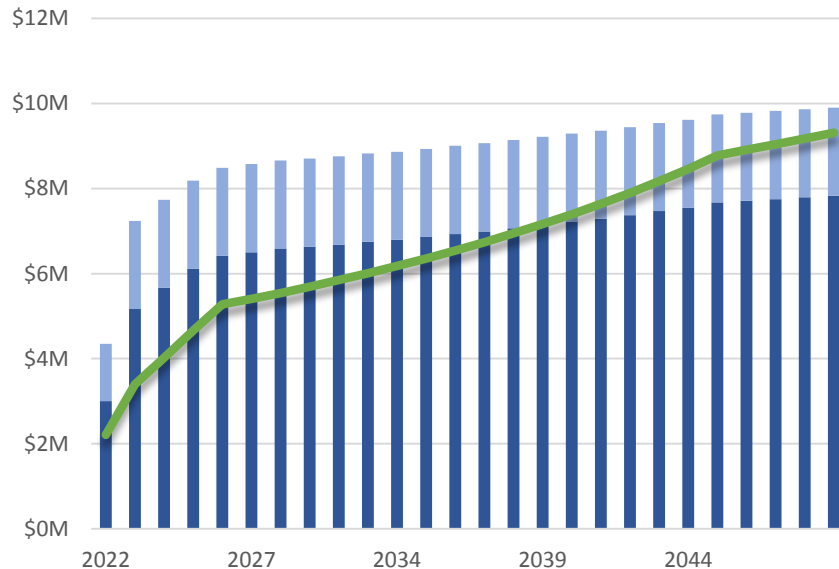
Total Shortfall: \$(3,106,700)
Years of Shortfall: 4

— Revenue
— Toll Capital
— Toll Operations

Charlotte Express Lanes Network

I-485 & US 74 (Aggregate)

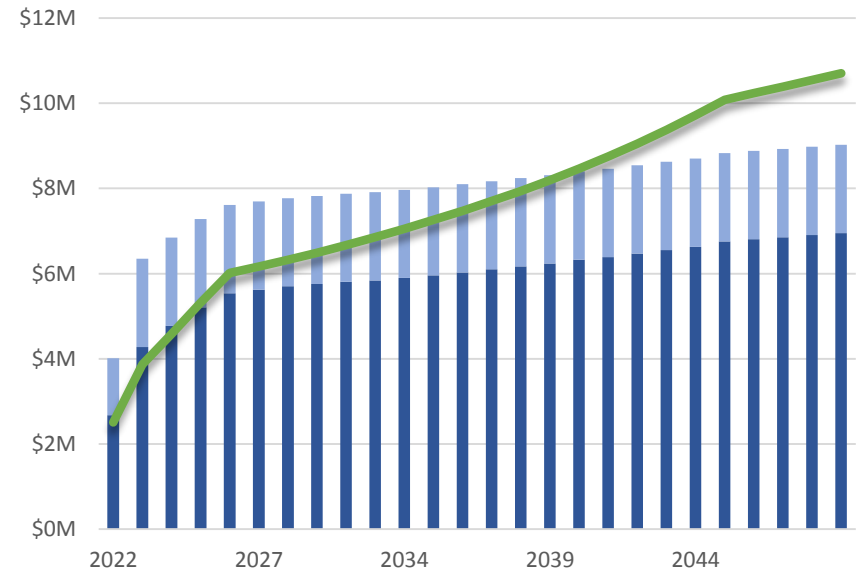
HOT3+ with Transponder



Total Shortfall: \$(56,756,600)

Years of Shortfall: 25

HOT3+ Registered Carpool



Total Shortfall: \$(19,584,300)

Years of Shortfall: 16

— Revenue
— Toll Capital
— Toll Operations

Financial Overview Summary

	US 74 - Phase I		US 74 - Phases I & II		I-485		I-485 & US 74 - Phases I & II	
	50% Revenue	100% Revenue	50% Revenue	100% Revenue	50% Revenue	100% Revenue	50% Revenue	100% Revenue
Total Shortfall	(\$5,335,000)	(\$748,600)	(\$36,149,400)	(\$13,466,600)	(\$3,106,700)	\$0	(\$19,584,300)	\$0
Years of Shortfall	15	5	25+	14	4	0	16	0
Years to Repay	25+	11	25+	25+	11	N/A	25+	N/A

Amounts transferred to be repaid with simple interest calculated at the rate determined by GS 136-176(b)

Proposed Approach

- Operating Policy for Use of Express Lanes
 - Vehicles registered in the ride-share program (vehicles with 3 or more passengers) and transit rides for free
- Details of Ride-Share program registration to be developed in concert with Transit
- Commit to installation of equipment that supports switchable transponders in future years
- Schedules contingent on MPO feedback and addressing base case financial model shortfalls

Next Steps & Proposed Schedule

- Next Steps

- Continue MPO engagement
- Complete level II Traffic and Revenue Study for US 74
- Support Guarantee Resolution

- Proposed Schedule

- | | |
|---|-------------|
| – Public Meetings | Spring 2018 |
| – Update to environmental document (US 74) | Spring 2018 |
| – Open bids for Design-Bid-Build contract (US 74 Ph. I) | Summer 2018 |
| – Completion of environmental document (I-485) | Summer 2018 |
| – Open bids for Design-Build contract (I-485) | Summer 2018 |

Resolution Requesting an NCDOT Support Guarantee for Certain STIP Projects

David Roy

Director of Finance

Backstop Resolution

- NCDOT will pay the Turnpike Authority, upon request for:
 - Unanticipated construction costs of a specified project
 - Deposit to the Revenue Account after anticipated debt service payments, an amount such that the Revenue Account has an amount equal to:
 - Expected O&M expenses
 - Expected R&R costs
- Simple interest on any amounts transferred is calculated at the rate determined by North Carolina General Statute 136-176(b)

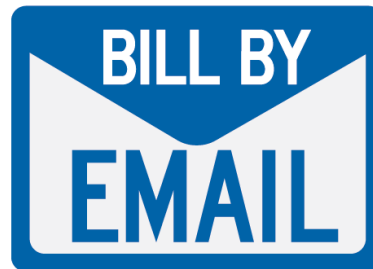
Bill by Email Program

Angela Queenland

Manager of Customer Service

Bill by Email

- The Bill by Email program is a new service that allows Bill by Mail customers to opt-in to receive future invoices by email in lieu of U.S. mail
- Go-live: December 29, 2017
- Bill by Mail customers who have received an invoice may opt-in online to receive future invoices by email




Customer Benefits


- New option for the customer to select their preferred method to receive invoices
- Access to the information needed to manage/pay invoices at the convenience of the customer
- Eco-friendly

NC Quick Pass Invoice

- Inform customers on the invoice payment coupon of the option to sign up online to receive future invoices by email

 **Pay Online**
www.ncquickpass.com

 **Pay by Phone**
1-877-7MY-PASS
(1-877-769-7277)

 **Pay by Mail**
Return Coupon with Payment
(make checks payable to NC Quick Pass and
include the invoice number on the face of the check.)



Sign up for invoices via email at www.mynccquickpass.com

☐ Address Change

Account Number: [REDACTED]
Invoice Number: [REDACTED]
Total Amount Due \$1.20
Must Be Received By 02/22/18
Amount Enclosed \$ [] [] [] . [] []




Quick Pass Customer Service Center
PO Box 71116
Charlotte, NC 28272-1116

022218 0000000065 [REDACTED] 7 000010170 7



SIGN UP NOW

MANAGE YOUR ACCOUNT



PAY YOUR BILL



NC Quick Pass™ INFO

January 23, 2018

Invoice Menu

Current Invoice

[Invoice History](#)[Invoice Transactions](#)[Get NC Quick Pass Transponder Account](#)

General Bill By Mail FAQ

- [What is Bill by Mail?](#)
- [I received a Bill by Mail invoice, what should I do?](#)

Bill by Email FAQ

- [What is the Bill by Email program?](#)
- [How do I sign up to receive invoices by email?](#)
- [What happens if my email address is entered incorrectly?](#)
- [How do I update my email address?](#)
- [How do I opt-out of Bill by Email?](#)

Current Invoice



Payment must be received by due date to avoid additional fees.

Get an NC Quick Pass account and you will save on travel, and pay a lower toll rate on all future usage of the Turnpike's facilities. If you would like to get a NC Quick Pass account, you must first pay all your open invoices. Click on the link to the left [Get NC Quick Pass Transponder Account](#) or [Click Here](#) to start the process of setting up your new account once payment is made on all of your invoices. If you have any difficulties or need assistance you can call the NC Quick Pass Customer Service Center at 1-877-7MY-PASS.

Bill By Mail

JOHN SMITH
200 SORRELL GROVE CHURCH RD
MORRISVILLE, NC 27560

Invoice Date: 01/04/2018

Invoice Number: 10000000000

Invoice Period: 11/30/2017 - 01/03/2018

Bill by Email - Sign up now!



Email Address:

You are not opted in to the Bill by Email service. [Click here](#) to opt-in.

Summary of Activity

Previous Balance	New Tolls	Other Charges	Total Charges	Payments and Adjustments	Total Amount Due	Due Date
\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	02/03/2018

Current Activity

New Activity: \$0.00

Current Balance: \$0.00

Last Payment: 06/26/2017

Invoice Payment Options

To make a payment with a credit card, specify the payment amount below and click **Pay Now**.

To make a payment by check, follow the instructions described on the invoice notice or visit the [Customer Service Center](#).

Mobile Opt-in

Verizon 7:03 PM myncquickpass.com

NC QUICK PASS Home

Current Invoice


Payment must be received by due date to avoid additional fees. Get an NC Quick Pass account and you will save on travel, and pay a lower toll rate on all future usage of the Turnpike's facilities.

Bill By Mail

Invoice Date : 01/04/2018
Invoice Number : 100000000000
Invoice Period : 11/30/2017 - 01/03/2018

JOHN SMITH
200 SORRELL GROVE CHURCH RD
MORRISVILLE, NC 27560
USA

Bill by Email

 **Email Address :**

You are not opted in to the Bill by Email service.
[Click here](#) to opt-in.

Summary of Activity

Previous Balance : \$0.00
New Tolls : \$0.00
Other Charges : \$0.00
Total Charges : \$0.00
Payments and Adjustments : \$0.00
Total Amount Due : \$0.00
Due Date : 02/03/2018

Verizon 7:04 PM myncquickpass.com

NC QUICK PASS Home

Bill by Email

Enter your email address:

Email Address


Retype Email Address

☐ Opt-in to Bill by Email.

Agree To Terms

NC QUICK PASS BILL BY EMAIL — TERMS AND CONDITIONS

These terms and conditions for the Bill by Email program, constitute an AGREEMENT between you and the North Carolina Turnpike Authority (AUTHORITY) relating to the method of correspondence chosen to receive your NC Quick Pass bill (INVOICE). By enrolling in the Bill by Email program, you acknowledge that in accordance with G.S. 136-89.214: (1) you are the registered owner or the person who had care, custody and control of the vehicle which traveled on a North Carolina toll facility; and (2) you request and consent to the AUTHORITY sending your INVOICE to a designated email address (EMAIL) rather than by first-class mail. Please read

 200 Sorrell Grove Church Road, Morrisville, NC 27560
| 2011 NC Quick Pass™


[HOME](#) | [FAQs](#) | [MANAGE YOUR ACCOUNT](#) | [CONTACT US](#)


SIGN UP NOW

MANAGE YOUR ACCOUNT



PAY YOUR BILL



NC Quick Pass™ INFO

January 23, 2018

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Bill By Mail

JOHN SMITH
200 SORRELL GROVE CHURCH RD
MORRISVILLE, NC 27560

Invoice Date: 01/04/2018

Invoice Number: 10000000000

Invoice Period: 11/30/2017 - 01/03/2018

Bill by Email - Sign up now!



Email Address: JohnSmith@johnsmith.com

You are opted in to the Bill by Email service. [Click here](#) to manage your preferences.

Summary of Activity

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Current Activity

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Current Balance: \$0.00

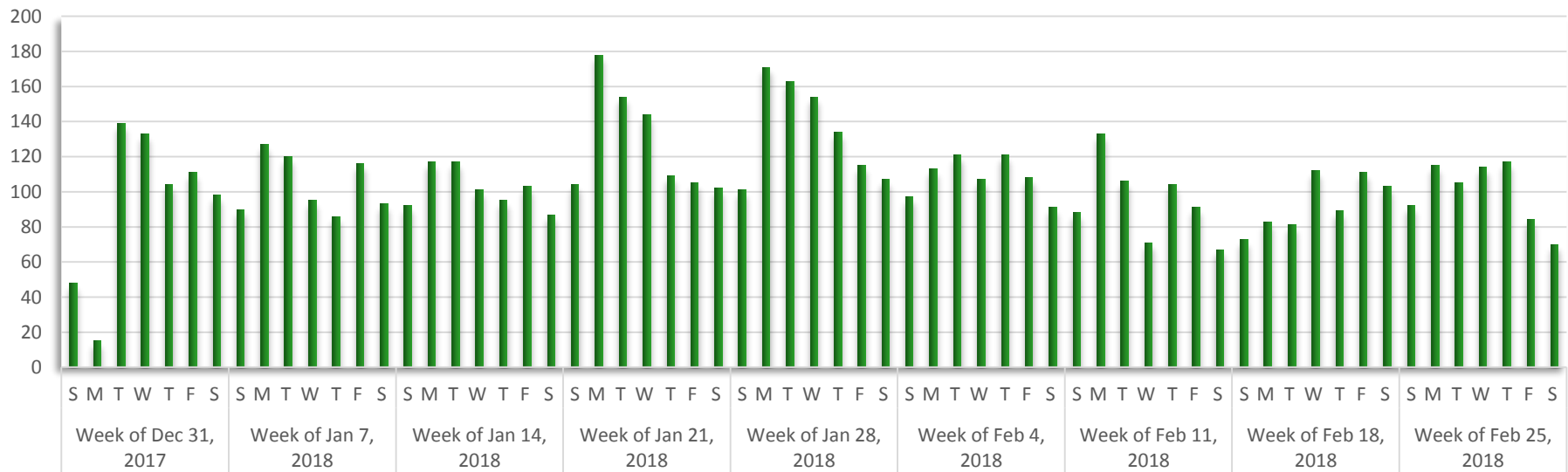
Last Payment: 06/26/2017

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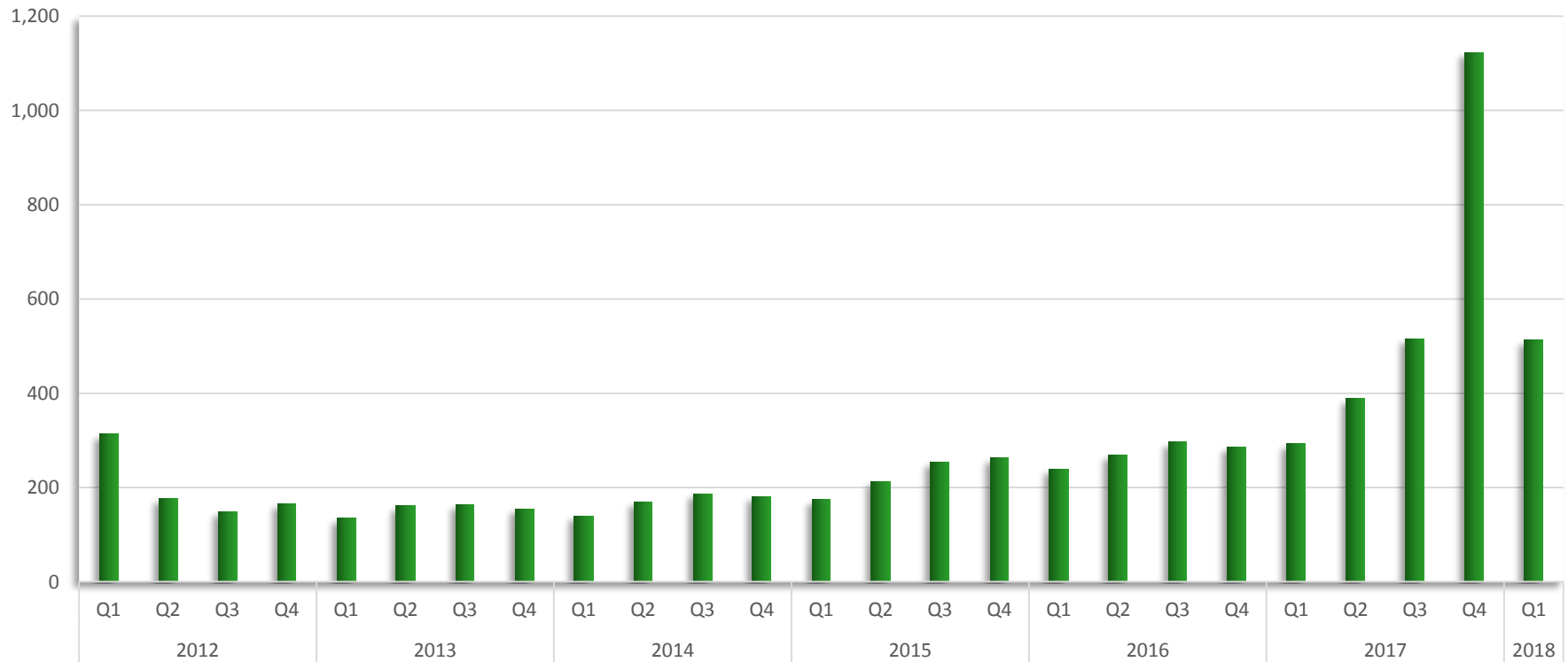
To make a payment by check, follow the instructions described on the invoice notice or visit the [Customer Service Center](#).

Bill by Email Enrollment (Opt-in Date)



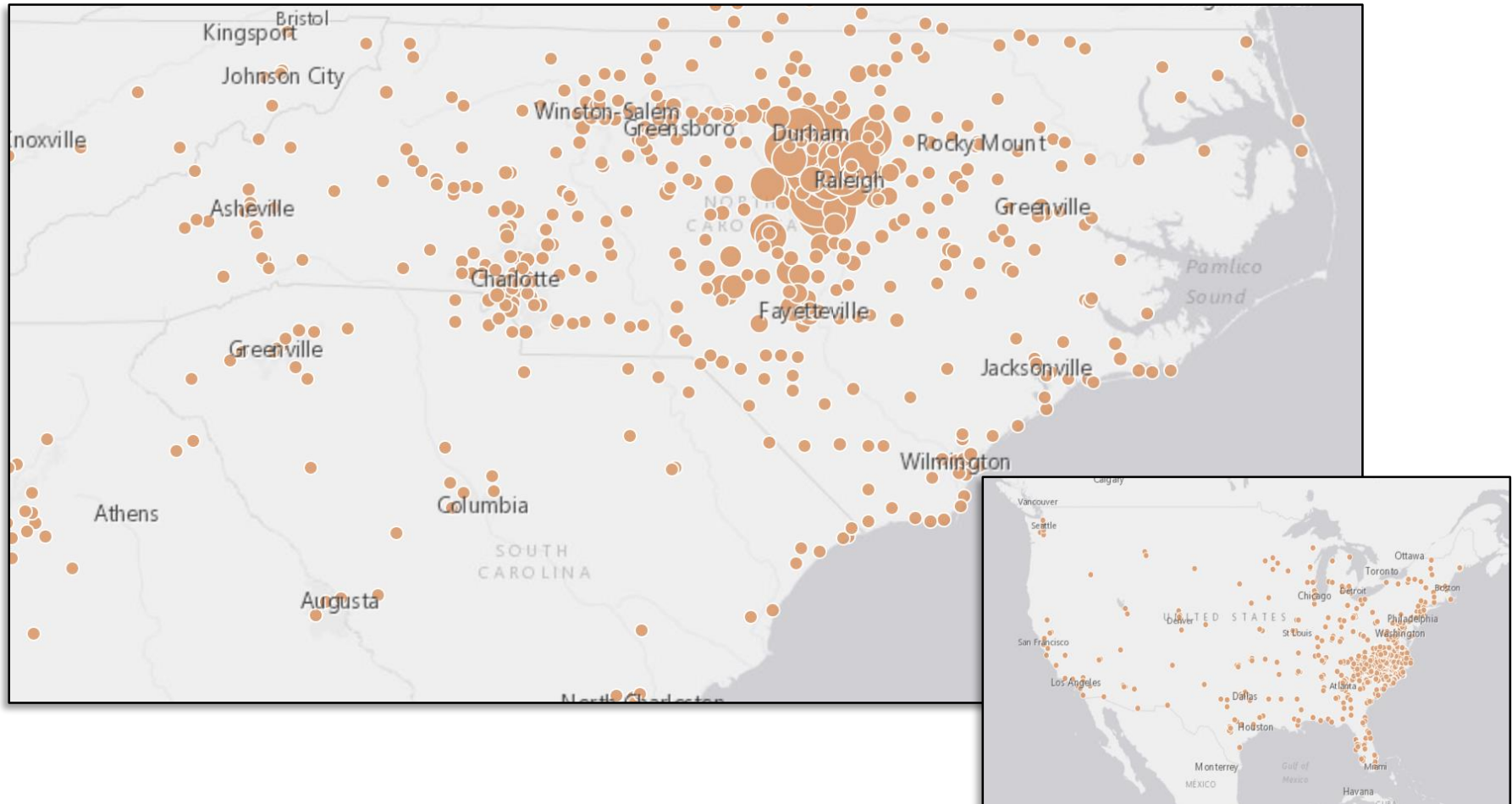
Total BBE Enrollment: 7,024
(as of March 5, 2018)

Bill by Email Enrollment (Account Open Date)



*Q1 2018 to date

Bill by Email Enrollment (By Zip Code)



Next Steps

- Continue to track system functionality
- Promote Bill by Email service
 - Social media
 - Storefront signage
 - Bill by Mail inserts

Thank you!